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Editorial Introduction

Technology and Understanding

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Abstract

Technology expresses the level of knowledge about nature and consciousness of a human being and represents a sort of material reflection of an individual and humanity. As such, technology is a fundamental capability of humans. Understanding by means of technology is a projective reconstruction of the meanings of signs, that is active, dynamic, objectifying interpretation. It is demonstrated how the contributions to this special issue implement comprehension of grammatical, linguistic and mathematical, artistic, legal and anthropological procedures of comprehension in the field of technical knowledge and technical implementation.

Keywords: Technology; Understanding; Hermeneutics; Semiotics; Technical worldview

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Редакторская заметка

Технологии и понимание

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Аннотация
Технология демонстрирует уровень знаний о природе и сознании человека и представляет собой своего рода материальное отражение личности и человечества. Таким образом, технология – это фундаментальная способность человека. Понимание с помощью техники – это проективная реконструкция значений знаков, то есть активная, динамичная, объективирующая интерпретация. Показано, как материалы этого специального выпуска реализуют понимание грамматических, лингвистических и математических, художественных, юридических и антропологических процедур понимания в области технических знаний и технической реализации.

Ключевые слова: Технологии; Понимание; Герменевтика; Семиотика; Техническое мировоззрение

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INTRODUCTION

The problem of comprehension is one of the oldest problems in philosophy. Beginning with the Prince Rama who suffered from the incapability to understand and attained deliverance from suffering through clarification (Venkatesananda, 1984), and up to nowadays everyone can say about themselves with the words of Peretz, one of the two main characters of "Snail on the Slope" by Boris and Arkady Strugatsky: "This is what I am sick with, longing for understanding" (Strugacky & Strugacky, 1992, p. 99). Incomprehension is a permanent shadow of the sojourner on the way to cognition. Ion, the winner in the contest of singers about Homer, found out that he understood nothing in the contents of poems that were communicated by him (Plato, ca. 380 B.C.E/1925). The mystic religious path of cognition connects incomprehension with the somatic way of human existence, and its overcoming – by escaping, with Plato, from the darkness of the cave of materiality, with the practices of clarification and insight, by giving hope for understanding as a miracle of remembering, and later – as a miracle of meeting the god. The inception of measurement and experiment and, in general, the scientific method of cognition made it possible to find and formalize specific techniques and procedures for understanding against the background of Christian monotheism. However, the existentialism of the 20th century on the one hand reawakened a medieval distrust of any sort of creation and turned to the facts of collective consciousness, and on the other hand deprived the Western world of their hope for salvation in a transcendent world. Lord Chandos, the character of Hugo von Hofmannsthal (2005), confirms the incapability of human language to capture and express reality. Albert Camus (1955) declares every situation of cognition absurd by placing the category of the absurd in the mutual presence of human and world. Elias Canetti (1964) in "The Blinding" depicts a situation of the total intranslatability of everyday reality into the languages of rational theory and rational action, resulting in the self-destruction of knowledge, the burning of the library. Oskar Matzerath, the main character of "The Tin Drum" by Gunter Grass (2004), stands in the church in front of the figure of Jesus while awaiting a small, extremely personal miracle, but no miracle is happening.

Incomprehension is a characteristic feature of the worldview crisis of Europe of the first half of the 20th century – as a refusal of interpretation and a certain effort of cognition, and simultaneously as a refusal to expect the miracle to happen and thus as an acceptance of the inability to escape from ordinary routines. In the second half of the 20th century, it is an ideological point of Americanized mass culture. From "People are strange…" (The Doors) and "We don't need no education…" (Pink Floyd's The Wall) up to "A Scanner Darkly" by Philip K. Dick, it is always the common sense of an ordinary person to be accustomed to incomprehension. Paul Feyerabend's methodological anarchism and post-modernist relativism seem to deconstruct and disavow the systematic way of thinking. Against this background, the philosophers of the 21st century, similar to Friedrich Schleiermacher, are forced to start detecting ways

of overcoming this incomprehension. In terms of Goethe's (1790/2014) Faust, it may be stated that the epic irony of Mephistopheles ("man spricht hier nicht vom Graben, doch vom Grab") was communicated to each school child in the forms of culture understandable to them. In contrast, the scientific world view as a project of the Modern Age is largely completed while the effort to comprehend and to understand oneself, others and a complex world is made in terms of technical knowledge and technical models in the context of a philosophy of technology, that is. Within the framework of a new, namely the technical worldview.

INCOMPREHENSION IN THE TECHNICAL WORLDVIEW. COMPREHENSION TECHNIQUES

The technical worldview is a way of seeing the world through the prism of usefulness (Engelmeyer, 2013) or a situation when cultural symbols are used and investigated as cultural tools (Scholtz, 2020), when the process of cognition is uncovered as a rational condition for the possibility of action. Technical hermeneutics (Scholtz, 1992-1993) – as a discipline within general hermeneutics answering the question what sequence of actions should be performed to overcome incomprehension – defines incomprehension as "the absence of someone's thoughts when he talks" (Chladenius, 1969), as the thing "that comes by itself" (Schleiermacher, 1977) with no comprehension effort. By contrast, for epistemology, incomprehension is a problematic situation defined as knowledge about the lack of knowledge (Dubrovsky, 1994). In terms of general semiotics, finally, incomprehension is assertion of knowledge about the interpretater's unfamiliarity with the rules that are necessary to be applied to reveal the meaning and the value of a sign (semantics), the place of a sign in the system and operation rules (syntactics), differentiation between the sign and the background (pragmatics). To fix the situation of incomprehension, the technical worldview of the 21st century may resort to the formula by Marin Mersenne, according to which understanding means being capable to do (Ropohl, 1981). Consequently, incomprehension is knowledge of the incapability to do, to reach the goal, to solve the problem. It thus refers to a situation of non-coincidence between the desired and the actual.,. Finding a solution to this problem requires increasing the amount of objective knowledge of the actor not only in terms of epistemology (the receptive knowledge about the world) but also in terms of praxeology (the projective knowledge about hierarchies and activity structures). Incomprehension is overcome by applying the comprehension rules or a particular comprehension technique. A number of such techniques used in religious and scientific contexts are well known and reflected in the literature. Comprehension techniques within the technical worldview of the 21st century remain an open problematic field.

In Western European hermeneutics, a set of comprehension techniques has formed, which are distinguished depending on the object of cognition: **God, text, persons** or **nature**. Understanding **God** is set by the Christian exegesis of Origen and Augustinus (Kuznecov, 1991). Here the comprehension technique contemplates the

guidance on stepwise ascent of individual consciousness from the literal everyday meanings of the words and sentences of sacred texts to the contemplation of the divine, anagogic structures behind them. An essential feature of these techniques is that they exclude the possibility of error in the comprehended text and are guided by understanding as a contemplative transformation of consciousness that brings the believer closer to God (Koncevich, 2009). Within a particular, confessionally directed religious practice, the techniques aimed at comprehending God play the role of a second birth of human, their influence is indisputable and obvious in all human activity.

Comprehending a **text** as a structural, expressed, distinguished speech communication in some language (Lotman, 1970) is a classic and the most developed area of cognition techniques. It is most developed in philological knowledge (as "understanding of the understood") or "literary hermeneutics" (Hirsch, 1974; Szondi, 2009). Cognition is defined here as "the transition from the sign to its value" (Kuznecov, 1991) or the "reproduction of speech" (Schleiermacher, 1977, 1985). The comprehension technique itself is built around "a positive formula of hermeneutics" with Friedrich Schleiermacher requiring the fullest possible reconstruction of the speech of an author, including its historical contexts, solving the task of understanding the author's speech better than he or she could do it themselves – also comprehending that the problem of understanding is infinite due to the recursiveness of the comprehension procedure. At the end of the 20th century, Axel Bühler, Wolfgang Künne, and Oliver Scholz reintroduced the comprehension techniques of the Leibniz-Wolf metaphysics (Baumgarten, 2004), most clearly formulated by Georg Friedrich Meier (1996), and representing a stepwise identification of an uncomprehended sign. Künne identifies 6 levels of understanding: 1) perceptual, 2) literal, 3) literal within a given context, 4) grasping the propositional meaning of an expression, 5) understanding the modal meaning of an expression, 6) understanding as an explanation of the action of a speaker, that is, disclosing the context within which a statement is explainable) (Künne, 2003). A similar model is formulated by Scholz (1992-93). The techniques of comprehending texts or speech were most generalized by David I. Dubrovsky (2007) in the context of information theory: comprehension is defined as the process of decoding, i.e. as identifying the correspondence between information and its carrier, where the task of "comprehension" is shown as the task of determining the mechanism of transformation from an "alien" into "natural" code, that is, the task of converting a code that is unknown to the system into a known one. In this case, the statement that someone "comprehends" is the statement that someone 1) possesses a system of natural codes, i.e. is able to operate with information (signs), 2) is able to recognize something unknown to them as an incomprehensible code against the background of a system of natural codes, where "incomprehensibility" or "incomprehension" is the subject's knowledge of its own unfamiliarity with the code, 3) is capable of translating or transforming the "unknown", represented in the form of knowledge about one's own unfamiliarity with the code, into known or natural codes. Text comprehension

techniques are the basis of *Geisteswissenschaft* or a scientific conception of knowledge production in the humanities.

Understanding a **person**, some other, an interlocutor is a problem that arose in the second half of the 19th century and was formulated by the philosophy of life in light of the crisis of creating a comprehensive picture of the world. Wilhelm Dilthey (1981) defines comprehension as "the discovery of myself in you" or as the ability to see oneself in another one. The problem itself arises from de-automation of the application of the congeniality principle (Betti, 1988), the discovery and reevaluation of human subjectivity. This comprehension technique implies training of empathy, compassion, or the ability to feel, and is explicitly formulated by Hans-Georg Gadamer as procedures for using language: "the existence that can be comprehended is language." A general sequence of comprehension operations suggested by Gadamer (1990) includes: 1) surprise or "involvement" of the individual, caused by the actual inability to find a correspondence for the perceived object or sensed experience in their own experience of perception and sensing, 2) setting up the question, creating an appeal to linguistic resources, 3) dissolving the borders in the individual's consciousness, that is, the transformation of pragmatic rules governing the experience of using the language, 4) the use of language in accordance with the transformed pragmatic rule to express (designate) the situation that caused the surprise.

Comprehending the world as it is or **nature** is the intellectual setting of natural science in the Modern Age. A reasonable questioning of nature by Francis Bacon, a dialogue with nature is an invention which has radically changed human. The inductive method of cognition as expressed by Galileo Galilei in the model of a measurement experiment, is a way to obtain true answers of reality to correctly asked questions by a researcher. The first step of this method is the formulation of a hypothesis, the second is the analysis and separation of the phenomena under consideration providing an accurate problem setting, the third is asking a question or an experiment, the fourth is postulating the result universally that is, formulating a law of nature (Dessauer, 1948, p. 36-40). Humans understand nature by knowing, due to the inductive method, how laws can be applied to specific phenomena.

COMPREHENSION IN THE TECHNICAL WORLDVIEW

Comprehending oneself and nature within a technical worldview is achieving the desired and meeting needs by inventing new objects of sensual perception, new subjects of understanding and new concepts based on the laws of nature. Comprehension is a technique, that is "real existence from ideas through a final shaping and processing from the reserves given by nature" (Dessauer, 1948, p. 234). Technical action as a process of comprehending includes three form-shaping abilities (Dessauer, 1958) or three acts: "... In the first act the invention is offered, in the second it is proved, in the third it is implemented. At the end of the first act there is a hypothesis; at the end of the second one there is a performance; at the end of the third one there is the phenomenon. The first act defines it teleologically, the second one logically, the third one factually. The first

act provides an intention, the second one a plan, the third one an act" (Engelmeyer, 2010, p. 103).

Real progress in human perception of nature and itself is expressed in the complication and development of technical understanding. The transition from a sign to its meaning in technology is creation of the meaning based on its sense (Nesterov, 2020), implementation of the performative function of semiosis, not only in terms of using some logical-grammatical form of a natural language, but in terms of using the entire existing complex of knowledge about nature in order to transform the way of existence of the human in the world. The theoretical aspects of language are studied by Luca Capone (2021) in the article "Which Theory of Language for Artificial Intelligence? Speech and Cognition in Humans and Machines". The author compares the internalist and externalist paradigms of language understanding, while clearly formulating both ontologies. Following the representation logics of the AI by a neural network, the author prefers the externalist ontology of language and its structuralist expression by Ferdinand de Saussure as a differentiated system of signs.

The progress of cognition in the structures of activity is associated with the successive replacement of intuitive action by a conscious, rule-obeying technical action based on knowledge of laws and of the particular problems that can be solved through their application. Sensual intuition – a practical action on creation or transformation of states of affairs in sensually perceived reality – turns into the process of creating technical objects in space and time, namely energy processing machines. Rational or understanding intuition is a practical action to create or transform states of affairs in the area of logical and grammatical forms of understanding. It involves the process of creating technical objects – information processing machines – in the field of language, mathematics and cybernetics. Intellectual intuition is a practical activity in the field of mind, for example in the process of constructing ontologies in order to technically implement the idea of a powerful AI. A significant problem of vertical scientific and technical progress is the upset of the balance between the technical and the humanitarian: The transformation of ethical norms and the systems of law expressing them is lagging behind the actual technical development. Not only isolated issues for the use of technical means, but also basic problems of interaction between humans and machines for the generation of information are currently beyond legal regulation. The article by Ivanov and Tsoi (2021) is partially devoted to solving this legal problem: "The concept, types and rules of the use of technical means in criminal proceedings".

The growth of the ability of humans and humankind as a whole to technically understand themselves and the world is expressed in at least two aspects: firstly, by an increase in the number of worlds or "layers of existence" that humans bring into the interaction, and secondly, by the complication of the human environment, the transition from natural environment to artificial one, and subsequently – to artificial environments of the second and third orders.

Mythological and religious worldviews introduced the human as a combination of two worlds, a secular one and a sacral one; the scientific and technical worldview defines it as a combination of three worlds or more (Dessauer, 1948): physical, biological, mental and spiritual. In this issue, an article by Andrei E. Serikov (2021) "Grammar of Behavior as a Theoretical Notion" makes an attempt to expand the range of worlds brought into interaction from the standpoint of philosophy of behavior and social psychology. "The grammar of behavior" is analyzed in the context of linguistics. The conclusion ventures further into the possibility of building a generative model of the grammar of behavior.

By creating new habitats, endowing machines for processing energy and information with the function of reflection, combined with autonomous nature and the ability to decide, humanity strives for a complete understanding of nature, for blurring the border between the artificial and the natural. The dialectics of the relationship between humans and nature through the prism of techné and shame is analyzed by Filippo Ursitti (2021) in his article "Promethean shame as the hidden instrumentum redemptionis humane". Through the works and terminology of Günter Anders, the author depicts the experience of sensing freedom and non-freedom, human subjectivity and alienation in connection with the growth of technical power, a complex interweaving of subject-object interaction, when a human is simultaneously a subject and an object of technology. An important conclusion by the author is connected with setting the problem of cultivation of the moral imagination and prognostic hermeneutics. The biopolitical aspects of the new artificial human habitat are considered by Jessica Lombard (2021) in the article "Technological Agencies in our Information Society: The Emergence of Biocitizenship and the Genetic Language". In the context of philosophy of medicine and philosophy of technology, the author explores new opportunities provided by DNA research in managing and understanding genetic risks, analyzes the development of genomic medicine and its political consequences in the form of "biological citizenship" in the new "molecular age." An analysis of the forms of exploring the human information environment in the languages of artistic culture is presented in the article by Tyutelova, Sergeeva and Sundukova (2021) "Virtual communication technologies in modern drama for teenagers". The authors demonstrate the transformation of language of the modern drama using virtual communication language as a method of self-identification of the epoch and the hero. They conclude that referring to new dialogue technologies, which do not correspond to modern dialogic forms of drama, may constitute the basis for the development of a dramatic language in general.

Humanity as a communication subject in dialogue withnature and as an auto-communication subject leaving to itself messages that are expressed by technical artefacts – objects, technologies and machines acting in the sphere of sensual perception, understanding and mind – implements an idea of superiority over nature articulated in the clearest form by Stanislav Lem in *Summa Technologiae*: We can

eliminate the difference between the artificial and the natural – it will happen at the moment when the artificial becomes indistinguishable from the natural and then surpasses it. And how should the superiority be understood? It signifies the implementation in nature of things, which are impossible for nature (Lem, 2004. p. 255-256). Comprehending the world or nature in order to understand oneself and building the horizons of our own future is a key element of scientific and technical progress, where the philosophy of technology performs the task of comprehending the understood, a task of reflexive meta-worldview cognition.

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